

REMARKS/ARGUMENTS

Claims 1-16 are pending. Claims 1, 7, and 12 have been amended. No new matter has been introduced. Applicant believes the claims comply with 35 U.S.C. § 112.

In addition, claims 1, 7, and 12 are amended merely to clarify the claims as originally submitted. No new matter is introduced and no new issue is raised.

Claims 1-4, 6-10, and 12-15

Claims 1-4, 6-10, and 12-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burton (US 2004/0236983) in view of Micka (US 6,611,901).

Applicant respectfully submits that independent claim 1 is patentable over Burton and Micka because, for instance, they do not teach or suggest revising the maintained first image of the first data stored on the primary volume to account for the updates to thereby provide a complete first data image for use when the link is restored; revising the maintained second image of the second data stored on the secondary volume to account for the updates to thereby provide a complete second data image for use when the link is restored; and based on the complete first data image and the complete second data image, copying data between the primary volume and the secondary volume when the link is restored to thereby resynchronize the primary volume and the secondary volume.

The Examiner cites Burton at paragraph [0046] for allegedly disclosing the revising steps. However, paragraph [0046] merely states: "Each side of the mirror pair maintains the information needed to reconstruct the operations which took place while the link was out 330." This does not constitute revising the maintained first image of the first data stored on the primary volume to account for the updates to thereby provide a complete first data image for use when the link is restored; and revising the maintained second image of the second data stored on the secondary volume to account for the updates to thereby provide a complete second data image for use when the link is restored.

Significantly, as the Examiner acknowledges, Burton does not disclose upon suspension of the link, maintaining a first image of the first data stored on the primary volume and maintaining a second image of second data stored on the secondary volume. The Examiner relies on Micka for allegedly teaching this step. However, because Burton does not teach maintaining the first image of the first data and the second image of the second data, there is no basis to interpret paragraph [0046] as revising the maintained first image of the

first data and revising the maintained second image of the second data. All paragraph [0046] teaches is maintaining information needed to reconstruct the operations which took place while the link was out; it does not specify what information is maintained and how it is used to reconstruct the data.

Burton discusses in greater detail maintaining the correct information while the link is out at paragraph [0048], and the resynchronization process at paragraph [0049]. Nothing in the description, however, suggests revising the maintained first image of the first data stored on the primary volume to account for the updates to thereby provide a complete first data image for use when the link is restored; and revising the maintained second image of the second data stored on the secondary volume to account for the updates to thereby provide a complete second data image for use when the link is restored.

Moreover, Burton at paragraph [0047] does not disclose, based on the complete first data image and the complete second data image, copying data between the primary volume and the secondary volume when the link is restored to thereby resynchronize the primary volume and the secondary volume. This is because Burton fails to teach or suggest revising the maintained first image of the first data to provide a complete first data image and revising the maintained second image of the second data to provide a complete second data image, and hence there is no basis in Burton for copying data based on the complete first data image and the complete second data image as claimed.

For at least the foregoing reasons, claim 1 and claims 2-4 and 6 depending therefrom are patentable over Burton and Micka.

Applicant respectfully submits that independent claim 7 is patentable over Burton and Micka because, for instance, they do not teach or suggest the first storage controller revising the maintained first image of the first data stored on the primary volume to account for the updates to thereby provide a complete first data image for use when the link is restored; the second storage controller revising the maintained second image of the second data stored on the secondary volume to account for the updates to thereby provide a complete second data image for use when the link is restored; and at least one of the first and the second storage controllers revising the data on the secondary storage volume to match the data on the primary storage volume after the link is restored, based on the complete first data image and the complete second data image.

As discussed above, Burton does not disclose upon suspension of the link, maintaining a first image of the first data stored on the primary volume and maintaining a second image of second data stored on the secondary volume. Because Burton does not teach maintaining the first image of the first data and the second image of the second data, there is no basis to interpret paragraph [0046] as revising the maintained first image of the first data and revising the maintained second image of the second data. In addition, Burton at paragraph [0047] does not disclose, based on the complete first data image and the complete second data image, copying data between the primary volume and the secondary volume when the link is restored to thereby resynchronize the primary volume and the secondary volume, because Burton fails to teach or suggest revising the maintained first image of the first data to provide a complete first data image and revising the maintained second image of the second data to provide a complete second data image.

For at least the foregoing reasons, claim 7 and claims 8-10 depending therefrom are patentable over Burton and Micka.

Applicant respectfully submits that independent claim 12 is patentable over Burton and Micka because, for instance, they do not teach or suggest the first storage controller revising the maintained first image of the first data stored on the primary volume to account for the updates to thereby provide a complete first data image for use when the link is restored.

As discussed above, Burton does not disclose upon interruption of the communications link, maintaining a first image of the first data stored on the primary volume. Because Burton does not teach maintaining the first image of the first data, there is no basis to interpret paragraph [0046] as revising the maintained first image of the first data.

For at least the foregoing reasons, claim 12 and claims 13-15 depending therefrom are patentable over Burton and Micka.

Claims 5, 11, and 16

Dependent claims 5, 11, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burton (US 2004/0236983) in view of Micka (US 6,611,901) and Crockett. The Examiner does not identify which Crockett reference of the three is asserted. Applicant believes it is Crockett (US 6,578,120). The Examiner cites Crockett for allegedly

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disclosing that the storage controllers each create a bitmap table to record all blocks of data which are updated after suspension of the link at column 11, lines 3-5.

Crockett, however, does not cure the deficiencies of Burton and Micka, in that it also fails to teach or suggest the features recited in independent claim 1 from which claim 5 depends, in independent claim 7 from which claim 11 depends, and in independent claim 12 from which claim 16 depends, as discussed above.

For at least the foregoing reasons, dependent claims 5, 11, and 16 are patentable over Burton, Micka, and Crockett.

CONCLUSION

In view of the foregoing, Applicant believes all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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